

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An apparatus of realizing a link access control protocol for IP multicasting/broadcasting (M/B) transmission in a mobile communication network, the apparatus comprising:

a packet data serving node (PDSN) for receiving an IP M/B packet from an IP M/B packet server or an Internet host and transmitting the IP M/B packet after converting the IP M/B packet into a transmission format;

a base station system including a base station controller/ packet controller function (BSC/PCF) and a base transmission station (BTS), the BSC/PCF receiving the IP M/B packet from the PDSN, converting the IP M/B packet into a cellular M/B request message and transmitting the cellular M/B request message into the BTS ~~under the control~~, and the BTS receiving the IP M/B packet from the BSC, segmenting the IP M/B packet into a radio frame size and transmitting radio frames of the IP M/B packet;

a mobile terminal for receiving and assembling the segmented radio frames of the IP M/B packet, transmitted from the BTS by radio, to form the IP M/B packet; and

a M/B link access control means based upon a re-transmission request message for frame transmission confirmation on the radio link between the mobile terminal and the BTS/BSC.

2. (Currently Amended) The apparatus of realizing a link access control protocol in accordance with claim 1, wherein the BTS/BSC comprises:

a LAC sub-layer including a link access controller (LAC) for storing the IP M/B packet, received from the BSC/PCF, into an internal buffer, and segmenting the IP M/B packet into ~~a~~ the radio packet frame size ~~necessary to~~ for a cellular IP ~~multicast~~ multicast/broadcast MAC protocol (CIBP); and

a medium access control (MAC) sub-layer for transmitting a CIBP service data unit (SDU), received from the CIBP at a lower layer of the LAC, into the mobile terminal via a physical layer.

3. (Original) The apparatus of realizing a link access control protocol in accordance with claim 2, wherein the LAC allocates sequence numbers to the radio packet frames of the segmented IP M/B packet, and transfers the CIBP SDU into the CIBP.

4. (Original) The apparatus of realizing a link access control protocol in accordance with claim 2, wherein the LAC transmits the sequence number of a CIBP SDU corresponding to the re-transmission request message upon receiving the re-transmission request message, when

receiving the re-transmission request message by using a signaling link access controller for receiving the re-transmission request message of a specific radio packet frame from the mobile terminal.

5. (Currently Amended) The apparatus of realizing a link access control protocol in accordance with claim 2, wherein the LAC transmits a specific CIBP SDU, and deletes the CIBP SDU if a re-transmission request message is not received when a radio packet frame time has lapsed after transmitting the CIBP SDU to process a new IP M/B packet.

6. (Currently Amended) The apparatus of realizing a link access control protocol in accordance with claim 1, wherein the mobile terminal comprises:

[[an]] a MAC sub-layer ~~with~~ having a physical layer for receiving the radio packet frames transmitted from the BTS, and a cellular IP multicast MAC protocol (CIBP) for transferring the received radio packet frames as a CIBP SDU into an upper layer; and

[[an]] a LAC sub-layer for assembling data in the CIBP SDU transferred from the MAC sub-layer to form the IP M/B packet and transferring the IP M/B packet into an upper data layer.

7. (Currently Amended) The apparatus of realizing a link access control protocol in accordance with claim 6, wherein the LAC ~~inspects sub-layer~~ determines if the transferred CIBP SDU is received in the unit of the IP M/B packet.

8. (Currently Amended) The apparatus of realizing a link access control protocol in accordance with claim 7, wherein the LAC sub-layer transmits the re-transmission request message for the ~~a~~ sequence number of the CIBP SDU, which is not received, via a signaling LAC into ~~[[an]]~~ a LAC of the BTS.

9. (Original) The apparatus of realizing a link access control protocol in accordance with claim 1, wherein each of the mobile terminal and the BTS/BSC comprises a signaling LAC for transmitting the re-transmission request message in processing transmission/receiving of the IP M/B packet.

10. (Currently Amended) A method of realizing a link access control protocol for IP multicast/broadcast (M/B) packet transmission in a mobile communication network, the method comprising the steps of:

receiving by ~~an~~ a link access controller (LAC) of a BTS/BSC an Internet IP multicast/broadcast (M/B) packet transferred via a BSC/PCF from an Internet host ~~and/or~~ a multicasting server, storing the Internet IP M/B packet into an internal buffer, and segmenting the Internet IP M/B packet into a radio packet frame size;

adding sequence numbers to the segmented radio packet frames and transmitting a cellular IP multicast/broadcast MAC protocol (CIBP) service data unit (SDU) ~~into to~~ a mobile terminal; and

assembling, in the mobile terminal, the CIBP SDU for the received radio packet frames and forming the IP M/B packet, and transferring the formed IP M/B packet into an upper layer of the mobile terminal.

11. (Currently Amended) The method of realizing a link access control protocol in accordance with claim 10, wherein ~~the a~~ LAC of the mobile terminal ~~inspects receiving in the unit of the IP M/B packet to transmit~~ determines if the transferred CIBP SDU is received and transmits a re-transmission request message about a SDU having a sequence number corresponding to the CIBP SDU, which is not received, into the BTS.

12. (Currently Amended) The method of realizing a link access control protocol in accordance with claim 11, wherein the BTS/BSC confirms whether the re-transmission request message is received from the mobile terminal via a signaling LAC, and re-transmits the SDU ~~about the sequence frame having the sequence number~~ into the mobile terminal if the re-transmission request message is received.

13. (Currently Amended) The method of realizing a link access control protocol in accordance with claim 12, further comprising ~~the step of canceling deleting~~ the CIBP SDU of the stored IP M/B packet and processing a new received IP M/B packet if the re-transmission request message is not received in a designated time after a specific packet is transmitted from the mobile terminal into the signaling LAC.

14. (Original) The method of realizing a link access control protocol in accordance with claim 10, wherein the size of the radio packet frame segmented in the BTS is variably changed according to channel conditions.

15. (New) The method of realizing a link access control protocol in accordance with claim 10, further comprising deleting the CIBP SDU from the internal buffer when a re-transmission request number is not received by the BTS/BSC within a specific time period.

16. (New) The method of realizing a link access control protocol in accordance with claim 10, wherein the CIBP SDU of the IP M/B packet is transmitted across a common channel.

17. (New) The method of realizing a link access control protocol in accordance with claim 10, wherein the IP M/B packet is transferred via a multicast/broadcast (M/B) channel.

18. (New) The apparatus of realizing a link access control protocol in accordance with claim 1, wherein the BTS transmits the radio frames of the IP M/B packet across a common channel.

19. (New) The apparatus of realizing a link access control protocol in accordance with claim 1, wherein the radio frames of the IP M/B packet are transferred via a multicast/broadcast (M/B) channel.

20. (New) The apparatus of realizing a link access control protocol in accordance with claim 1, wherein the BTS segments the IP M/B packet into a plurality of CIBP service data units (SDU) and transmits the plurality of CIBP SDUs to the mobile terminal.

21. (New) A method of IP multicasting/broadcasting (M/B) transmission in a mobile communication network, the method comprising:

receiving a IP M/B packet at a base station system from a packet data serving node (PDSN);

converting the IP M/B packet into a cellular M/B message;

segmenting the IP M/B packet into a radio frame size; and

transmitting radio frames of the IP M/B packet via a common channel to a mobile terminal.

22. (New) The method of claim 21, further comprising:

transmitting a re-transmission request message when the mobile terminal fails to receive one of the segmented frames of the IP M/B packet.

23. (New) The method of claim 22, wherein the base station system includes:
- a LAC sub-layer having a link access controller (LAC) to store the IP M/B packet, in a buffer and segment the IP M/B packet into the radio packet frame size for a cellular IP multicast/broadcast MAC protocol (CIBP); and
 - a medium access control (MAC) sub-layer to transmit CIBP service data unit (SDUs) received from the CIBP at a lower layer of the LAC, to the mobile terminal via a physical layer.
24. (New) The method of claim 23, wherein the LAC allocates a plurality of sequence numbers to the radio packet frames of the segmented IP M/B packet, and transfers the CIBP SDUs to the CIBP.
25. (New) The method of claim 23, wherein the LAC transmits the sequence number of one of the CIBP SDUs corresponding to the re-transmission request message upon receiving the re-transmission request message, when receiving the re-transmission request message by using a signaling link access controller for receiving the re-transmission request message of a specific radio packet frame from the mobile terminal.
26. (New) The method of claim 23, wherein the LAC deletes the CIBP SDU if the re-transmission request message is not received after a time period has lapsed after transmitting one of the CIBP SDUs.

27. (New) The method of claim 21, wherein the mobile terminal comprises:
- a MAC sub-layer having a physical layer to receive the radio packet frames, and a cellular IP multicast MAC protocol (CIBP) to transfer the received radio packet frames as CIBP SDUs to an upper layer; and
 - a LAC sub-layer to assemble data in the CIBP SDUs transferred from the MAC sub-layer to form the IP M/B packet and to transfer the formed IP M/B packet to an upper data layer.
28. (New) The method of claim 27, wherein the LAC sub-layer determines if the transferred CIBP SDUs are received.
29. (New) The method of claim 27, wherein the LAC sub-layer transmits the re-transmission request message for a sequence number of one of the CIBP SDUs that is not received.